DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: PEMIGEWASSET LAKE

Town: MEREDITH

Maximum depth (m): 8.8

County: Belknap

River Basin: Merrimack

Latitude: 43°36'54" N

Longitude: 71°35'41" W

Shore configuration: 1.74

Elevation (ft): 559

Areal water load (m/yr): 6.70

Shore length (m): 6100

Watershed area (ha): 1346.8

P retention coeff:: 0.61

% watershed ponded: < 0.10

Lake type: natural

BIOLOGICAL:	3 January 1994	24 August 1993
DOM. PHYTOPLANKTON (% TOTAL) #1	ASTERIONELLA 90%	CHRYSOSPHAERELLA 40%
#2	DINOBRYON 10%	DINOBRYON 20%
#3		COELOSPHAERIUM 20%
PHYTOPLANKTON ABUNDANCE (cells/mL)		985
CHLOROPHYLL-A (µg/L)		0.90
DOM. ZOOPLANKTON (% TOTAL) #1	KELLICOTTIA 23%	NAUPLIUS LARVA 25%
#2	POLYARTHRA 18%	KERATELLA 23%
#3	KERATELLA 15%	
ROTIFERS/LITER	42	65
MICROCRUSTACEA/LITER	6	81
ZOOPLANKTON ABUNDANCE (#/L)	60	159
VASCULAR PLANT ABUNDANCE		Common/Abun
SECCHI DISK TRANSPARENCY (m)		3.8
BOTTOM DISSOLVED OXYGEN (mg/L)	11.3	0.2
BACTERIA (E. coli, #/100 ml) #1		1
#2		8
#3		

SUMMER THERMAL STRATIFICATION:

weakly stratified

Depth of thermocline (m): None Hypolimnion volume (m³): None

Anoxic volume (m^3) : 29000

CHEMICAL:	Lake: PEMIGEWASSET LAKE Town: MEREDITH			T LAKE	
	3 January 1994		24 August 1993		
DEPTH (m)	2.5	4.5	3.0	6.0	
pH (units)	6.5	6.4	6.7	6.3	
A.N.C. (Alkalinity)	3.9	4.0	3.8	4.1	
NITRATE NITROGEN	< 0.02	0.02	< 0.02	< 0.02	
TOTAL KJELDAHL NITROGEN	0.20	0.30	0.38	0.37	
TOTAL PHOSPHORUS	<0.001	<0.001	0.012	0.011	
CONDUCTIVITY (µmhos/cm)	44.9	45.0	40.8	41.5	
APPARENT COLOR (cpu)	18	18	38	38	
MAGNESIUM			0.51		
CALCIUM			2.1		
SODIUM			4.3		
POTASSIUM			< 0.40		
CHLORIDE	7	7	6	6	
SULFATE	5	5	4	4	
TN : TP			32	34	
CALCITE SATURATION INDEX			3.7		

All results in mg/L unless indicated otherwise

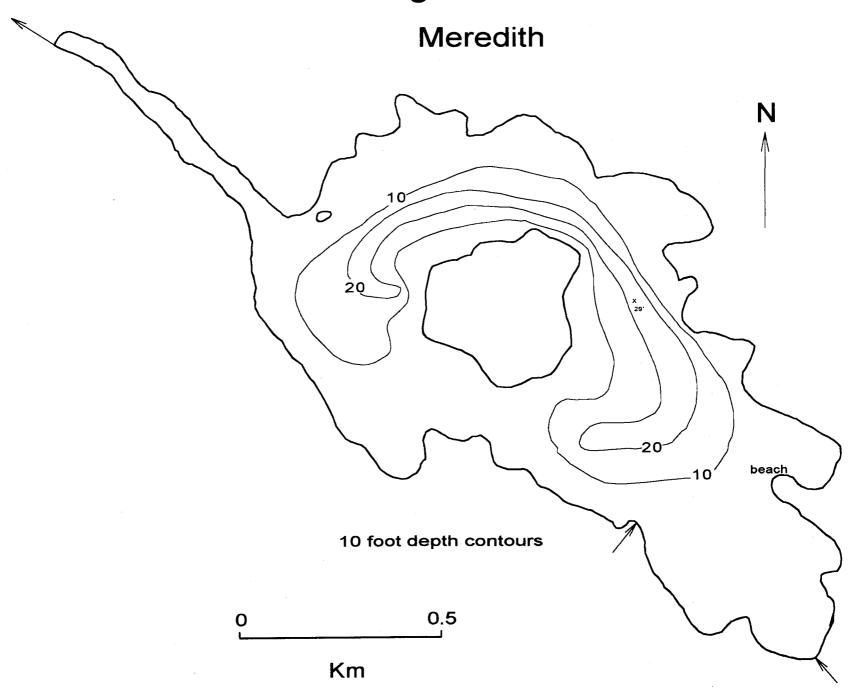
TROPHIC CLASSIFICATION: 1993

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	2	4	0	6	Meso.

COMMENTS:

- 1. A.K.A. Kelly Pond.
- 2. This pond was previously surveyed and classified in 1980. There was no change in trophic classification or in overall quality, but specific parameters were different--some better, some worse. The chlorophyll declined from 7.7 mg/m³ to less than one (which is good), but the bottom dissolved oxygen also declined, going from 3.0 to 0.2 mg/L (which is bad). The 1993 phosphorus values were half the 1980 values. More frequent sampling (such as through a volunteer monitoring program) is needed to discern specific water quality trends.
- 3. <u>Mallomonas</u> (30%), <u>Merismopedia</u> (20%) <u>Cryptomonas</u> (15%) and <u>Chroomonas</u> (15%) were the dominant genera of wholewater phytoplankton.

Pemigewasset Lake



FIELD DATA SHEET

FIELD DATA SHEET					
	PEMIGEWASSET L 08/24/93		TOWN: MEREDITHER: SUNNY, WARM	ł	
	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGI SATURAT	
	0.1	23.7	8.7	100	8
	1.0	23.5	8.7	100	ક
	2.0	22.3	8.5	96	8
	3.0	22.0	8.4	95	8
	4.0	21.7	7.9	87	ક
	5.0	21.5	7.3	81	ક
	6.0	21.0	3.8	42	8
	7.0	18.5	0.4	4	ક
	8.0	16.0	0.2	2	४

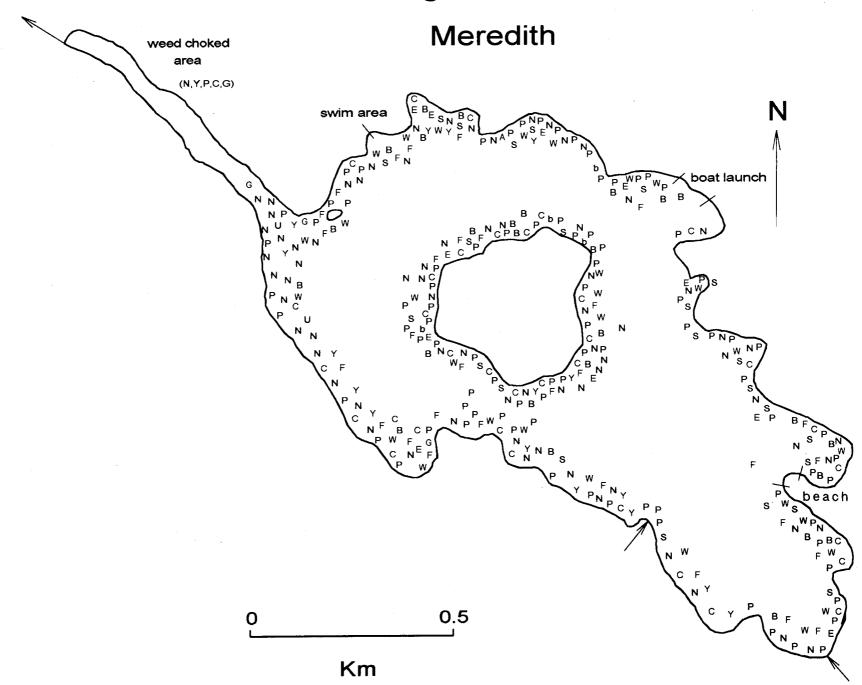
SECCHI DISK (m): 3.8 COMMENTS:

BOTTOM DEPTH (m): 8.6

TIME: 1400

*Dissolved oxygen values are in mg/L

Pemigewasset Lake



AQUATIC PLANT SURVEY

LAK	E: PEMIGEWASSET LAKE	TOWN: MEREDITH	DATE: 08/24/93
Vor	PLANT	NAME	ADIMIDANGE
Key	GENERIC	COMMON	ABUNDANCE
P	Pontederia cordata	Pickerelweed	Common
E	Eriocaulon septangulare	Pipewort	Scattered
F	Nymphoides cordatum	Floating heart	Scattered
N	Nymphaea	White water lily	Common
Y	Nuphar	Yellow water lily	Scattered
В	Brasenia schreberi	Water shield	Scattered
W	Potamogeton	Pondweed	Scattered
S	Sparganium	Bur reed	Scattered
G	Gramineae	Grass family	Sparse
С	Cyperaceae	non-flowering sedge	Scattered
b	Scirpus	Bulrush	Sparse
A	Sagittaria	Arrowhead	Sparse
บ	Utricularia	Bladderwort	Sparse

OVERALL ABUNDANCE: Common/Abun

GENERAL OBSERVATIONS:

- 1. Bottom was not visible except in very shallow water. Filamentous algae were frequently observed along the eastern shore bottom where the bottom was visible.
- 2. Bladderwort was observed on the bottom; it may have been more abundant than indicated because of lack of good visibility.
- 3. Plants were very abundant in the outlet channel.